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John Grimes Partnership Ltd
Leonards Road,
Ivybridge,
Devon,
PL21 0RU

1st July 2016

Ref 5267/pja

Dear Andrea,

Application Number -	0348/15
Proposal -	Extension to Yennadon Quarry
Applicant Name -	Mr D Wallace
Site Address -	<u>Yennadon Quarry, Iron Mine Lane, Dousland</u>

I write following our recent meeting with the local authority (DNPA) and have now considered in more detail the noise generated by each part of each phase of the working of the proposed extension to the quarry to assess whether bunding along the western and north edges of the quarry is required.

My noise calculations have been based on the following assumptions;

- **Striping/overburden**

The stripping of top soil and overburden to get down to useable stone at a depth of approx' 3m will be carried out using a 360° slew and a dumper only,

- **Stone Extraction**

The first or higher "bench" will be formed at least 4m into the useable stone and once this has been worked out a second or lower bench will be formed 6m deeper. The equipment used to work the stone will be;

- 360° slew with riddler bucket (estimated 110 dB L_{WA} 100% run time),
- 360° slew with ripper nose (estimated 111 dB L_{WA} 100% run time),
- 360° slew with Krupp pneumatic hammer (estimated 110 dB L_{WA} 20% run time),
- Dumper (estimated 106 dB L_{WA} 100% run time),

[illegible]

I have used 3D computer noise model software, provided by Wolfe IMMI, to calculate noise emissions, which has been updated following the publishing of an amendment to the calculation procedure set out in ISO 9613-2:1996 (Acoustics - Attenuation of sound during propagation outdoors - Part 2: General method of calculation). This amendment being detailed in ISO/TR 17534-3:2015 (Acoustics - Software for the calculation of sound outdoors - Part 3: Recommendations for quality assured implementation of ISO 9613-2 in software according to ISO 17534-1). The amendment effects the way screening attenuation levels (A_{bar}) is calculated when the barrier only just breaks the line of sight between source and receiver and can increase predicted screening levels by as much as 5 dB.

The table below shows the noise levels for each element of each phase at the closest residential property Higher Yennadon, to the north-west, with no bunds along the western or northern boundaries;

Phase	Activity	Equipment used	duration	noise level at High Yennadon dB L _{Aeq,8hr}
1a	stripping/overburden	360 slew dumper	4 weeks	54
1b	high level on 1st bench equipment 7m AOD	360 slew dumper ripper hammer	9 to 12 months	47
1c	low level on 2nd bench equipment 13m AOD	360 slew dumper ripper hammer	9 to 12 months	41
2a	stripping/overburden	360 slew dumper	4 weeks	52
2b	high level on 1st bench equipment 7m AOD	360 slew dumper ripper hammer	15 to 20 months	47
2c	low level on 2nd bench equipment 13m AOD	360 slew dumper ripper hammer	15 to 20 months	43
3a	stripping/overburden	360 slew dumper	4 weeks	52
3b	high level on 1st bench equipment 7m AOD	360 slew dumper ripper hammer	15 to 22 months	46
3c	low level on 2nd bench equipment 13m AOD	360 slew dumper ripper hammer	15 to 22 months	43

This shows that quarry activity noise levels will be less than 50 dB L_{Aeq,day} (when measured at the nearest residential neighbours) for all non-temporary works without any bunding.

It is interesting to note that to make quarrying activity noticeably quieter (5 dB) the bunding would need to be 6m high along the western and northern boundaries of the quarry extension.

Yours sincerely,



Peter Ashford